

WHAT IS CLAIMED IS:

1. An injection molding apparatus, comprising:
  - a manifold having a manifold channel for receiving a melt stream of moldable material under pressure;
  - a mold plate adjacent said manifold having a opening, a mold gate, and a mold cavity;
  - a nozzle being received in said opening in said mold plate, said nozzle having a nozzle channel in fluid communication with said manifold channel;
  - a nozzle tip received in a downstream end of said nozzle and having a melt channel in fluid communication with said nozzle channel and a valve pin guiding portion provided at a downstream end of said nozzle through which said valve pin is aligned with said mold gate, wherein a gap is present between said nozzle tip and said nozzle and said nozzle tip is at least partially slidable within said nozzle channel; and
  - a valve pin movable through said manifold channel, said nozzle channel and said melt channel to selectively open said mold gate.
2. An injection molding apparatus as claimed in claim 1, wherein said nozzle tip is flexible and bends laterally to align said melt channel with said mold gate.
3. An injection molding apparatus as claimed in claim 2, wherein said valve pin guiding portion has an outwardly extending flange having a peripheral edge, said peripheral edge being in abutment with the inner edge of said opening in said mold plate and aligning said melt channel and said valve pin with said mold gate.
4. An injection molding apparatus as claimed in claim 1, wherein said mold gate is provided in a mold gate insert, said mold gate insert being

received in an aperture provided in said mold plate at a downstream end of said opening.

5. An injection molding apparatus as claimed in claim 1, further comprising a sealing member provided between said nozzle tip and said nozzle.
6. An injection molding apparatus as claimed in claim 5, wherein said sealing member is comprised of an insulating material.
7. An injection molding apparatus as claimed in claim 5, wherein a gap is present between a downstream end surface of said sealing member and an upstream surface of said outwardly extending flange in a non-operating state.
8. An injection molding apparatus as claimed in claim 1, wherein a downstream surface of said outwardly extending flange contacts a shoulder provided in said opening of said mold plate.
9. An injection molding apparatus as claimed in claim 8, further comprising at least one cavity provided in said downstream surface of said outwardly extending flange.
10. An injection molding apparatus as claimed in claim 1, wherein said outwardly extending flange is comprised of an insulating material.
11. An injection molding apparatus as claimed in claim 1, wherein said nozzle tip and said valve pin guiding portion are one-piece.
12. An injection molding apparatus as claimed in claim 1, wherein at least one of said valve pin or said valve pin guiding portion comprises cut out channels therein reducing the area of contact therebetween.

13. An injection molding apparatus, comprising:  
a mold plate adjacent said manifold having a opening, a mold gate, and a mold cavity;  
a nozzle being received in said opening in said mold plate, said nozzle having a nozzle channel in fluid communication with said manifold channel;  
a nozzle tip received in a downstream end of said nozzle and having a melt channel in fluid communication with said nozzle channel;  
a valve pin movable through said manifold channel, said nozzle channel and said melt channel to selectively open said mold gate; and  
wherein said nozzle tip is flexible and bends laterally to align said melt channel with said mold gate.

14. The injection molding apparatus as claimed in claim 13, wherein said nozzle tip is coupled to a valve pin guiding portion and wherein said valve pin guiding portion has an outwardly extending flange having a peripheral edge, said peripheral edge being in abutment with the inner edge of said opening in said mold plate and aligning said melt channel and said valve pin with said mold gate.

15. An injection molding apparatus as claimed in claim 14, wherein said outwardly extending flange is comprised of an insulating material.

16. An injection molding apparatus as claimed in claim 14, wherein said nozzle tip and said valve pin guiding portion are one-piece.

17. A valve pin guiding tip for an injection molding apparatus comprising:  
a valve pin guiding portion including an outwardly extending flange coupled to a downstream end of a nozzle, said outwardly extending flange having a peripheral edge for abutting an inner wall of an opening in a mold plate;

an inner surface defining a melt channel through said valve pin guiding tip, said inner surface receiving a valve pin for selectively engaging a mold gate; and

wherein said valve pin guiding portion aligns said valve pin with said mold gate.

18. A valve pin guiding tip as claimed in claim 17, wherein at least one of said valve pin or said valve pin guiding portion comprises cut out channels thereby reducing the area of contact therebetween.

19. A valve pin guiding tip as claimed in claim 17, wherein at least one cavity is provided in a downstream surface of said outwardly extending flange.

20. A valve pin guiding tip as claimed in claim 17, wherein said outwardly extending flange is comprised of an insulating material.

21. A valve pin guiding tip as claimed in claim 17, further comprising an upstream end sized to telescope within a nozzle channel of a nozzle.